

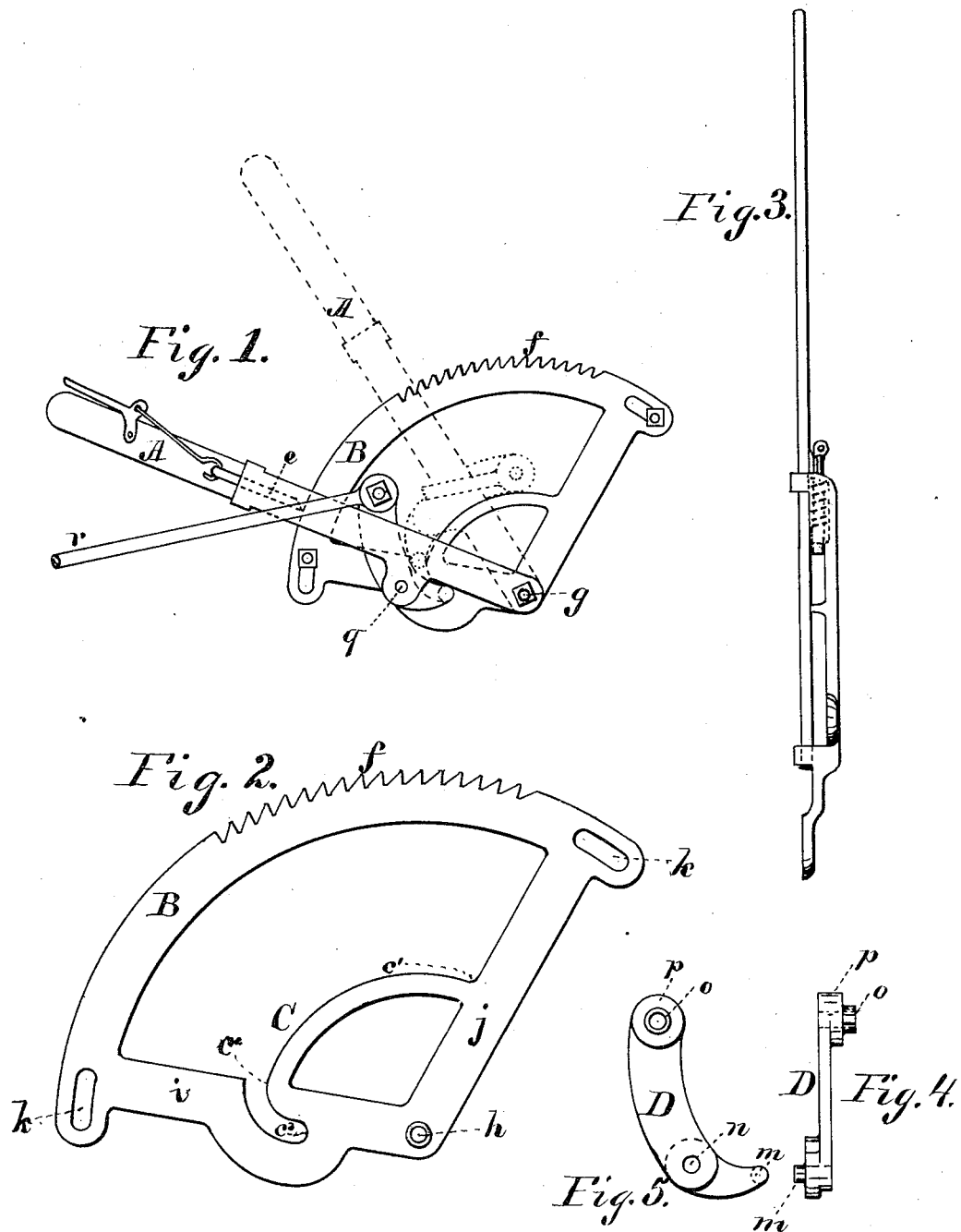
(Model.)

J. W. McPHERSON.

BRAKE LEVER.

No. 348,229.

Patented Aug. 31, 1886.



Witnesses.
J. W. Stewart
J. H. Goodwin

Inventor
John W McPherson
By W^m K White
his atty

UNITED STATES PATENT OFFICE.

JOHN W. McPHERSON, OF MOLINE, ILLINOIS.

BRAKE-LEVER.

SPECIFICATION forming part of Letters Patent No. 348,229, dated August 31, 1886.

Application filed December 19, 1885. Serial No. 186,239. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. McPHERSON, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Levers, of which the following is a specification.

This invention relates to combining with a pivoted or hinged lever-arm an auxiliary attachment to cause the draw-rod connected or other equivalent at all times or at a certain time of the movement of the lever-arm to move with the same rapidity, or to move more or less rapidly in the same parallel line than the lever-arm, and to increase or decrease the leverage force or power upon such draw-rod or other equivalent as the lever-arm is moved.

It is obvious that the form of my attachment may be changed from that described herein without departing from the scope of my invention, and in the illustration herewith I have applied or combined my invention with the common form of lever, such as is often used in manipulating an ordinary wagon-brake.

Figure 1 is a plan view. Fig. 2 is a plan view of the plate, showing the arched groove or bearing; Fig. 3, a view taken from the rear of the lever-arm; Fig. 4, a view taken from the rear of the bar or arm, and Fig. 5 a plan view of such bar or arm.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents the lever-arm; B, the plate or casting with the arched groove or bearing C, and D the arm or bar.

The lever-arm A here illustrated has a catch, *e*, attached to a spring and short lever in the usual manner, so that catch *e* may be engaged or disengaged in the ratchets *f* on the plate or casting B, and at the lower end of said lever-arm A there is a perforation, so as to permit the bolt *g* to pass through and into the perforation *h* in the plate or casting B. The upper serrated arch shown in plate or casting B may be projected outwardly from the arms *i* and *j*, so as to permit the lever-arm A to rest against its inner surface and be pivoted upon the outer surface of the arms *i* *j* at the point *h*, and when so connected it will be seen the lever-arm A may be moved forward and backward, and catch *e* may be engaged in the ratchets *f*, as desired. Perfora-

tions, round or elongated, as desired, may be made in the plate or casting B, as shown at *k* *k*, through which said plate or casting B may be rigidly attached to such plain surface, as desired. By attaching a draw-rod to the lever-arm A, and attaching the plate or casting B to the side of a wagon-box, it will be seen that the mechanism illustrated represents an ordinary lever used for the purpose of manipulating a wagon-brake. I have chosen this style of a lever merely for the purpose of illustrating the attachment which I have invented.

The attachment which I combine with a lever-arm consists of the arched groove or bearing C, either made a part of the plate or casting B, or constructed as a separate or independent part. This arched groove or bearing C must be curved to co-operate with the bearing *m* on the bar or arm D, to move or rotate partially said bar or arm D on its axis or pivot *n*, as desired. In the drawings the arched groove or bearing C is curved, as shown at *c'*, *c''*, and *c'''*; but it will be readily seen that while this form of curve will serve the purpose of the lever here shown, yet for other purposes or in other forms of lever the curve would have to be shaped to co-operate with the mechanism used to produce the result desired. So, too, the arch may be constructed with a continuous groove, or a groove as shown at *c''* and *c'''*, and a bearing, as at *c'* and *c''*, or, indeed, known equivalents may be used, as its office is to rotate partially the bar D, as before stated. The bar or arm D, as here illustrated, is perforated at *n*, through which it is pivoted to the lever-arm A through the perforation *q* on the projection thereto. The bar or arm D also has a projection, *m*, which serves as the bearing and rides or moves in the groove or bearing *c'*, *c''*, and *c'''* on the curved arch C. The arm or bar D has a projection on its opposite side, *p*, and a smaller projection therefrom, *o*, which may be perforated for the purpose of pivoting thereto a rod or arm, *r*.

In the drawings here shown, *r* represents a wagon-brake draw-rod, intended to be properly attached at its opposite end to move the wagon-brakes. The projection *p* is intended to limit the movement or rotation of the bar or arm D by coming in contact with the side

of the lever-arm A; but it will be readily seen that if the arched groove or bearing C has a continuous groove, as at c^3 and c^2 , so as to hold the bearing m therein, then the projection p can be omitted, because the bearing m in the continuous groove will perform the same office. It will also be seen that a bearing can be made upon the lever-arm A, which will also perform the same office. The form of the arm or bar D as here shown is intended for use upon this kind of a lever, and for the purpose of assisting in the manipulation of a wagon-brake; but it will be readily seen that the form of the bar or arm D may be changed so as to co-operate with other mechanism used and to produce the results desired. The bar or arm D is pivoted to the lever-arm A through the perforations n and g , and the lever-arm A pivoted to the frame or casting B by the bolt g , passing through the perforation h , and the bearing m of the bar or arm D inserted in the groove at c^3 in curved arch or bearing C, and the draw-rod r pivoted in the perforation of the projection o on the bar or arm D, as fully shown in Fig. 1. As the lever-arm A is moved forward, and, as shown by the dotted lines, the bearing m on the bar or arm D moves in the groove from c^3 to and passes c^2 in the arched groove or bearing C, the bar or arm D is thereby caused to partially rotate on its pivot or axis n , and thus that part of said bar or arm D at m is elevated and that part at o depressed. As the distance between the perforation n and projection o on the bar or arm D is greater than the distance between the perforation n and bearing or projection m , consequently, in rotating partially, the end of the bar or arm D at o moves more rapidly than at m ; but if the distances were the same the rapidity of movement would be the same, and if the distance between said point n and o were less than the distance between the point n and m , then the end of the bar or arm D at o would move less rapidly than at the point m . As the lever-arm A moves forward, it pulls the bearing m against the groove or bearing in the arch C and upward toward c^2 , causing the bar or arm D to partially rotate, and the part o is thrown more rapidly forward than the lever-arm A in the same line, and it is also thrown downward. This downward movement of the bar or arm D at o decreases the distance between the point o and the point g upon the lever-arm A, and as this distance decreases the leverage-power correspondingly increases. When the bearing m is at the point c^2 and the lever-arm A is moved backward, the leverage-power will correspondingly decrease, because the distance between the points o and g is constantly increasing; but the rapidity of movement at point o will be as before. These are useful and valuable features in many instances, especially in the case of manipulating wagon-brakes attached to the lever through

the medium of a draw-rod. It is desirable to apply the rubbers to the wheels quickly, and with sufficient leverage-power to insure strong friction, and the draw-rod being pivoted at the point o these results may thus be obtained. It is also desirable to remove the rubbers from the wheels quickly, and through my device this result can be obtained. When the bearing m is at the point c^2 and the lever-arm A is moved forward, the projection p limits or prevents further rotation of the bar or arm D in the direction which would depress the point o , and the draw-rod r moves with the same rapidity as the lever-arm A on the same line, and the leverage-power continues the same as though the bar or arm D were rigidly attached to the lever-arm A, and the arched groove or bearing C dispensed with. This, however, is but the ordinary operation of a lever, and is well known; but it is apparent that it may be desirable for some purposes simply to obtain rapidity or slowness of movement and increasing or decreasing leverage, as shown, when the bearing m travels or moves in the groove between the points c^3 and c^2 ; hence I do not limit myself to combining these features with the other features above described—that is, of the draw-rod r moving with the same rapidity as the lever-arm A when the bearing m moves between the points c^2 and c^3 .

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An arm or equivalent hinged to permit partial rotation on a lever-arm, which is also hinged or pivoted to an unyielding object permitting it partial parallel rotation to the rotation of said arm, and said arm having a bearing controlled by a groove or guide permitting such bearing to move at an angle, right or otherwise, to the imaginary circle traversed by said lever-arm when moving forward or backward, and said arm being connected with a draw rod or arm at a point which is at an angle, right or otherwise, to said bearing, so that the movement of said draw rod or arm, as the lever-arm moves forward and backward, may, as desired, be the same or more or less rapid than the movement of said lever-arm in a line with said point of connection, and so that in the movement of said lever-arm the leverage-power is increased or decreased by the point of connection of said draw-rod being moved nearer or farther from the hinged or pivoted connection of the lever-arm to said unyielding object, substantially as described.

2. The pivoted lever-arm A, the slotted or grooved arch-bearing C, and pivoted bar D, connected to a draw-rod at an angle with its bearing upon the slotted or grooved arch-bearing C, substantially as described.

JOHN W. McPHERSON.

Witnesses:

J. M. STEWART,
T. C. GOODWIN.